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finger or pen a similar result can be obtained. The adaptation of the narrow inverted-funnel-shaped peristome is evident. If the opening were larger the puff of air caused by the pressure on the capsule would not be sufficient to carry out the spores and it would also admit water. Prof. Lloyd thinks that this impeaches my statement that spores depend on wind for distribution. I do not believe that the spores will be normally ejected from the wet capsules, and surely the wind must play a considerable part in the scattering of the dry spores after they are ejected.

I hope some of our readers will try to make observations which will answer the following questions:

Will rain drops cause the ejection of the spores? I have not actually seen this and Prof. Goebel does not state that he has, but the inference is that he speaks from observation. It seems to me that insect footfalls and other causes may be as potent as raindrops. Possibly spores may adhere to the bodies of the animals which cause their discharge, and be still farther distributed in this manner.

Will the spores continue to be ejected after the capsules are wetted?

Will the spores of Buxbaumia be ejected in a similar manner in any of the species? I am particularly anxious to have this third question carefully investigated because European bryologists state that the spores can not escape through the peristome because of their large size. If this be true it seems conclusive proof of the degeneracy of Buxbaumia, for surely the highly developed peristome had a function at some time in the phylogenetic history of the species.

Members of the Sullivant Moss Chapter are specially requested to investigate and report.

SCIENTIFIC NAMES AND THEIR CHANGES. II. (Concluded).*

By A. J. Grout.

Two or more names which may have been applied to the same plant are known as synonyms and whichever is adopted for the plant in question, none of the others should be applied to any new species of that same genus. This in order to avoid confusion.

It sometimes happens that the same specific name is given to two species in the same genus. Thus the moss which Schimper named *Pylaisia velutina* has been found by Cardot to be the moss which Hedwig called *Pterigynandrum intricatum* and which should be called *Pylaisia intricata* (Hedw.) Cardot.

Then the moss which has been passing as *Pylaisia intricata* (Hedw.) Schimp. has to have a new name, and M. Cardot proposes to call it *P. Schimperi* in honor of Schimper. In this case the confusion was caused by Schimper's failure to determine just what Hedwig's *Pterigynandrum* was. In the more common case the man who uses the name the second time is ignorant of its first use.

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*Dr. M. A. Howe calls my attention to the fact that the Berlin rule referred to in Part I. was promulgated by the botanists of the Berlin Museum and not by a "Congress." This rule, however, has been widely adopted.

In cases of this sort it is greatly to be regretted that the error was not corrected earlier as the names have been in use for nearly fifty years, and the change must occasion considerable temporary confusion. There is almost no dissenting opinion, however, on the desirability of such changes.

The matter of deciding upon the correct specific name is, however, exceedingly simple as compared with the determination of the proper generic name. The selection of generic names which shall stand every scrutiny is respectfully offered to the logicians of to-day as a worthy substitute for a discussion of the famous syllogism proving motion impossible, or perhaps it would prove as effective in promoting learned argument as the discussion of how many angels can stand on the point of a needle.

Frequent cause of change in generic names is the fact that the same generic name has been used for entirely different genera, often in different subkingdoms. For instance, the moss genus *Thamnium* had to be changed to *Porotrichum* because *Thamnium* was used for a genus of lichens and also for a genus of flowering plants before Bruch and Schimper used it for the mosses. *Porotrichum* is chosen because it is the second oldest generic name applied to any member of the genus. The genus *Homalothecium* and the subgenus *Limnobium* will have to be replaced for the same reason. The name *Pleuropus*, which Mr. Dixon uses in his Handbook, is as untenable as *Homalothecium*.

Sometimes, however, this apparently reasonable ruling appears to be more honored in the breach than in the observance. The proposed change of *Neckera* to *Eleutera* furnishes an excellent illustration of such a case. *Neckera* (then written *Neckeria*) was first applied to the genus of mosses by Hedwig in 1782, one hundred and twenty years ago. Recently it has been discovered that in 1777, five years earlier, Scopoli applied the name *Neckeria* to the flowering plant which has long been known as *Corydalis*. Now, if it were possible or desirable to use this name for *Corydalis* a change would be necessary, but as Neckeria is antedated for this purpose by fourteen years by *Capnoides*, and *Corydalis* has been in common use for almost one hundred years it seems extremely unlikely that *Neckeria* will ever cause confusion. This position may be illogical but scientific names are supposedly, at least, made for men, not men for scientific nomenclature.

One of the most fruitful causes of changes of names as well as the most legitimate is the splitting up of old genera as knowledge advances.

Thus, the genus *Hypnum* of Linnaeus included pretty nearly all the Pleurocarpous mosses, *Anomodon*, *Leskea*, *Thuidium*, *Neckera*, *Homalia*, *Leucodon*, and many others. As the knowledge of mosses increased it became necessary to separate or split off genus after genus from the original Hypnum of Linnaeus. Each writer splits off what seems to him good leaving the residue as Hypnum, often without a thought of what the earlier author considered as typical members of his genus. This method of residues sometimes produces queer results. Take the case of the moss generally known as *Dicranodontium longirostre* described under the name *Didymodon denudatus* in Braithwaite's British Moss-flora. *Didymodon* was established by Hedwig in 1792 for *D. rigidulus* to which he later added *D. homomallus*; the former is now referred to *Barbula*, the latter to *Ditrichum*.

In 1807 Weber and Mohr added two species now referred to *Swartzia*, and a new species, the *Dicranodontium*, above mentioned. Thus it will be seen that the *Didymodon* of Braithwaite does not contain a single species originally included in it by the author. Such cases are not rare and if the method of residues is still tolerated by the scientific world there is nothing to prevent a perpetual migration of generic names after this manner just as one sees fit to add and another to subtract. Under such circumstances it seems a scientific farce to write as Braithwaite does *Didymodon* (Hedw.) for a genus that does not include a single species included by its author.

In the Memoirs of the Torrey Botanical Club, Vol. 6, No. 4, Dr. L. M. Underwood proposes a rule of procedure which he has carried out in the generic nomenclature of ferns, much to the upsetting of current generic names. His method of procedure is to take the first species mentioned in the original definition of a genus as the type unless the author in some other manner clearly indicates what his type species is. To apply the rule to the mosses would be to make the plant now called *Neckera complanata* the type species of Leskea and all our other Neckeras. would become Leskeas. Also the first species named by Dillenius under his genus *Mnium* is *M. androgynum*, now known as *Aulacomnium*. According to Dr. Underwood all the Aulacomniums become Mniums. and a new name must be found for Mniums. These two instances are only illustrations of the many that would be required by the application of this rule to the nomenclature of the mosses. It seems as though this arbitrary selection of the first species as the generic type would be productive of much needless change, and it is by no means certain that it would in many cases give any better representation to the ideas of the author of a genus. But it does seem indisputable that a genus accredited to a man should contain at least one species which he included in it in his original definition. And the present condition of nomenclature makes it imperative upon every man describing new genera to indicate clearly what he considers the type species.

In conclusion it may be said that many of the proposed changes are absolutely necessary to do away with indefinite confusion and many of the rules made by the reformers of nomenclature are wisely chosen, but the avowed purpose of some of them to make the whole matter of botanical nomenclature depend on a set of rules to be mechanically applied with no reference to previous usages savors of the methods of the middle ages, and is evidently only another manifestation of the tendency of the human mind to avoid personal reponsibility by reference to authority.

A NOTE.

A new station for *Buxbaumia indusiata* Brid. has been added to the list for New Hampshire, having been found by Mrs. B. Madeline Britton on decayed logs at Surry, N. H., September 3d, 1902.